"THE CITY CENTER"

Robert L. Foreman

PART II

"AMERICAN ARCHITECT"

EXCERPTS FROM

THE AMERICAN ARCHITECT

FEBRUARY 25, 1925

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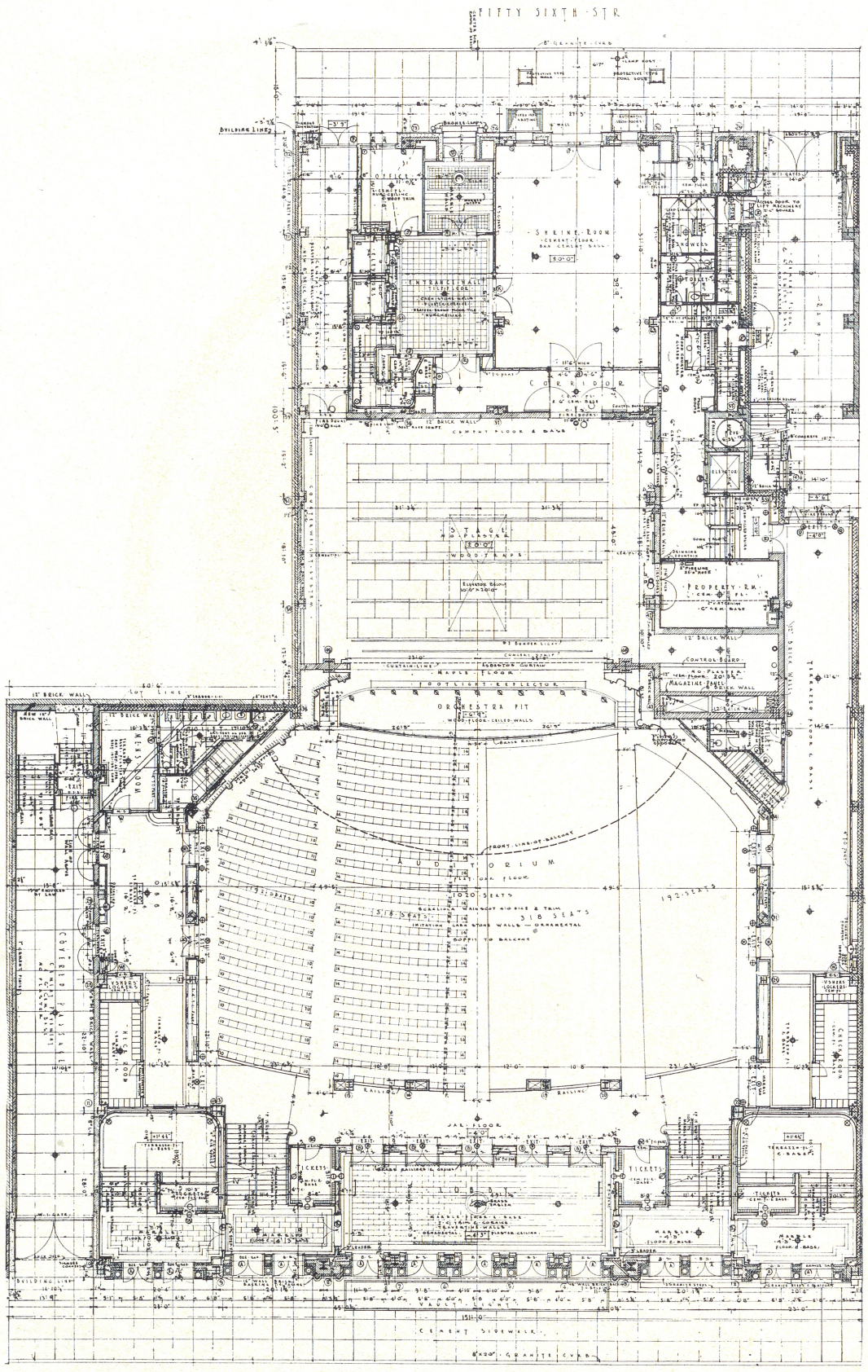
MECCA TEMPLE, NEW YORK

H. P. KNOWLES, ARCHITECT—CLINTON & RUSSELL, SUPERVISING ARCHITECTS

(*Plan on back*)

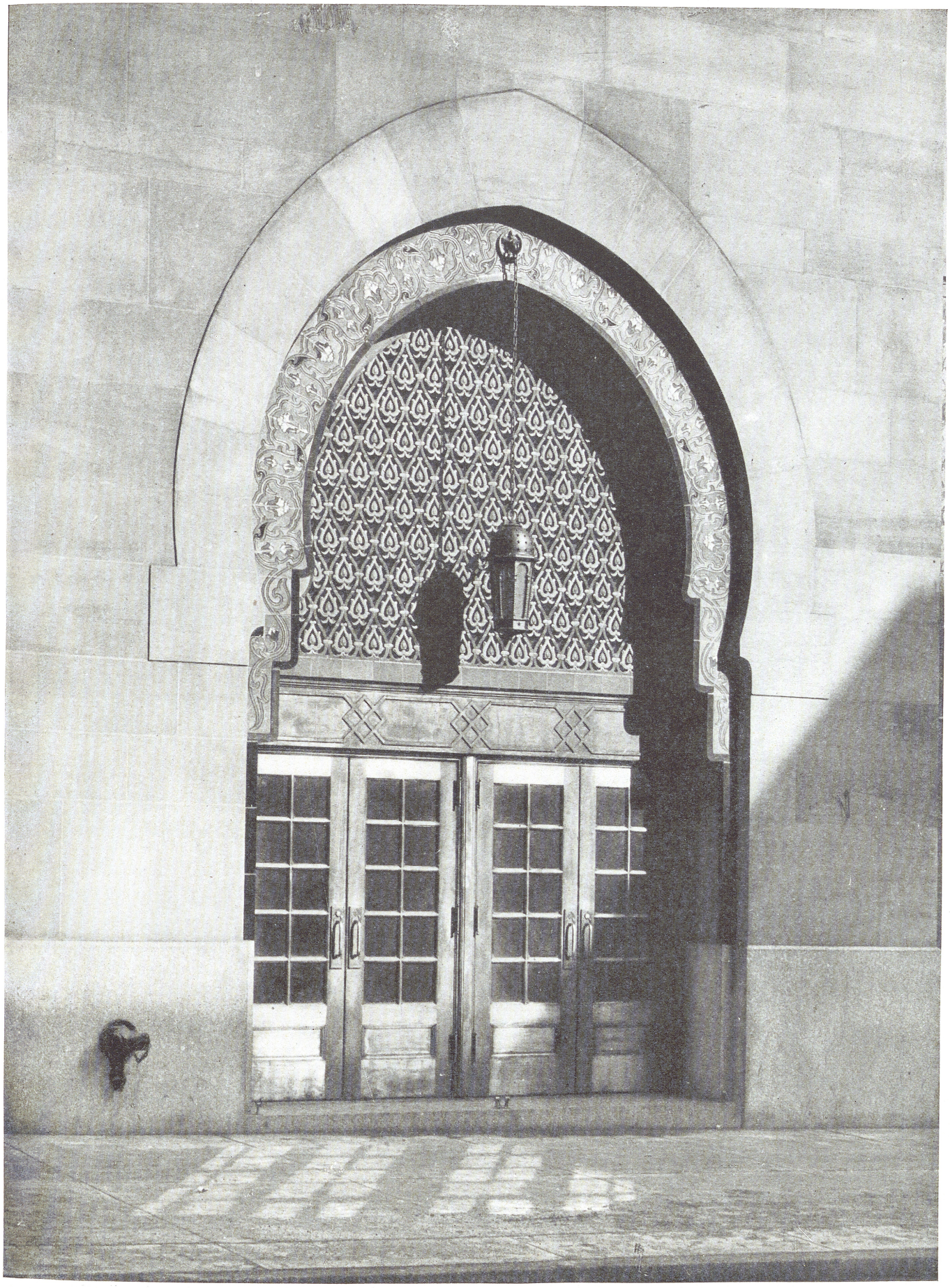


FIFTY FIFTH STREET

FIRST FLOOR PLAN.

MECCA TEMPLE, NEW YORK

H. P. KNOWLES, ARCHITECT—CLINTON & RUSSELL, SUPERVISING ARCHITECTS



MECCA TEMPLE, NEW YORK

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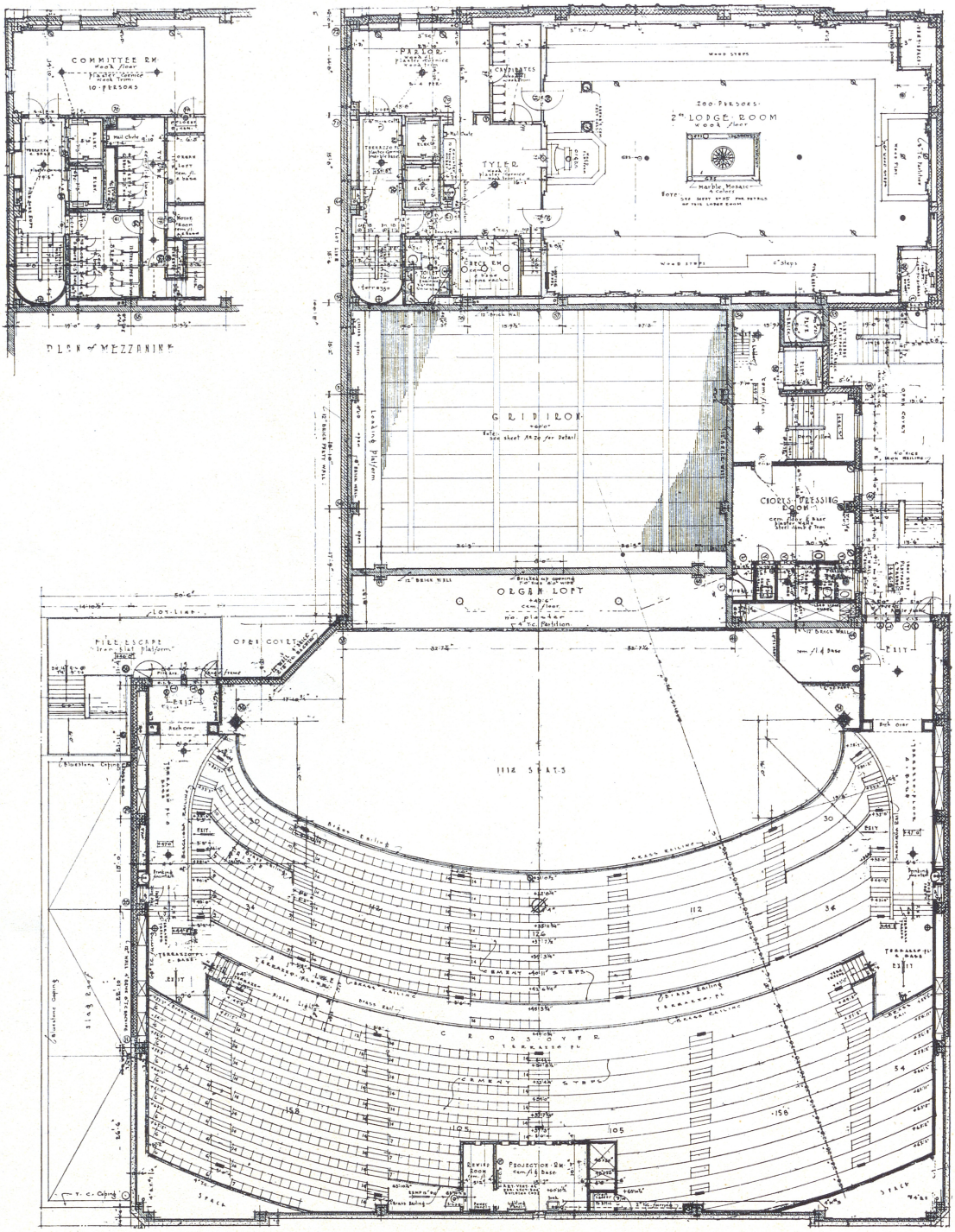
(*Plans on back*)



FIFTH FLOOR
GALLERY PLAN

MECCA TEMPLE

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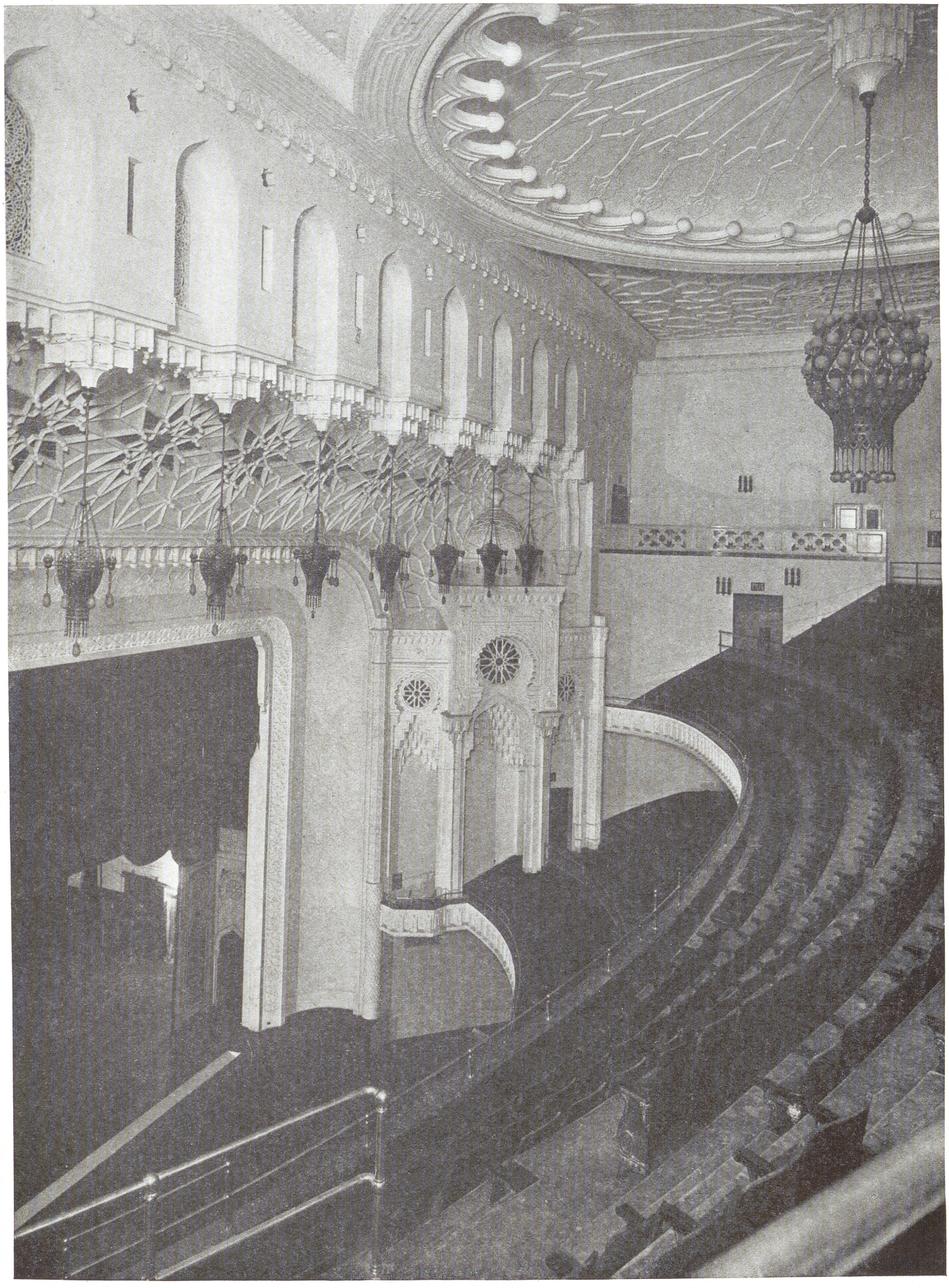
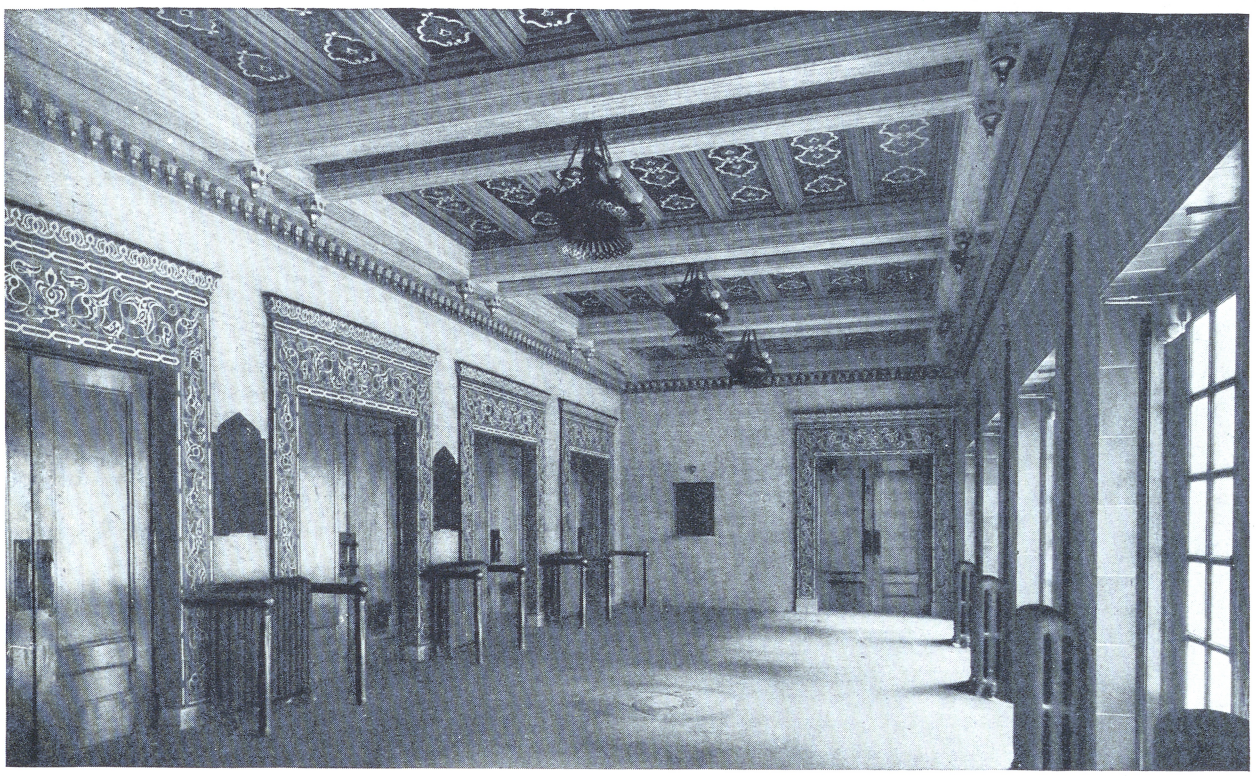


MECCA TEMPLE, NEW YORK

H. P. KNOWLES, ARCHITECT—CLINTON & RUSSELL, SUPERVISING ARCHITECTS



ENTRANCE LOBBY, FIFTY-FIFTH STREET

MECCA TEMPLE, NEW YORK

H. P. KNOWLES, Architect—CLINTON & RUSSELL, Supervising Architects

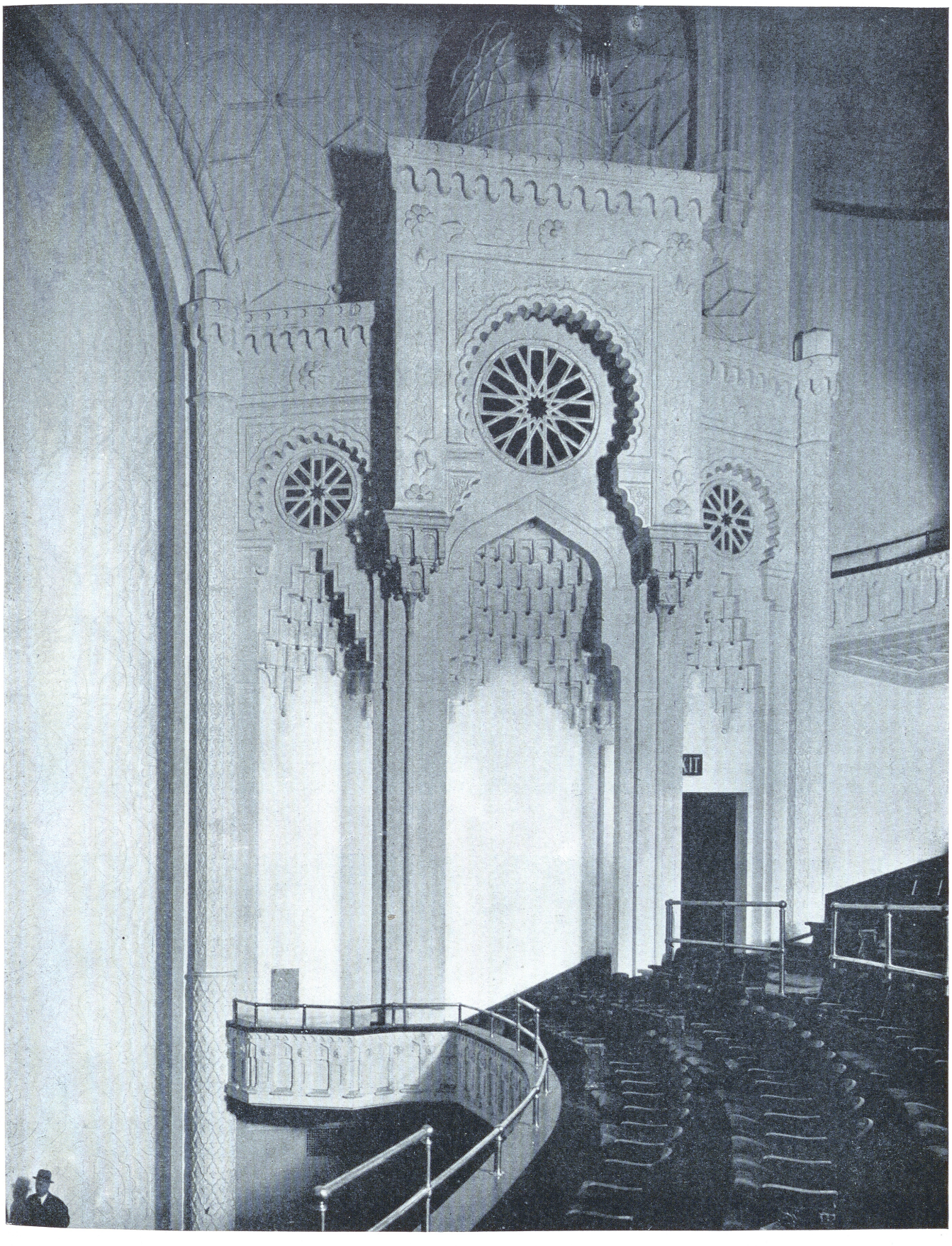
NEW YORK'S civic center may be correctly described as peripatetic. The City government may arbitrarily select a site for its municipal building, placed near the City Hall, which when erected was in "the heart of the city." It may group its new court house, its many dependent buildings close by, and call it the civic center. But to that large number of people that form our transient population, the center is that location where the theatre district lies and the department stores are grouped. Many years ago, the "Rialto," that promenade for the Thespian in and out of work, was at Fourteenth Street. Then the theatres, with Tammany Hall as a focal center, were in that neighborhood. The trend was Northward. Fourteenth Street's wane saw Twenty-third Street's ascendancy and in like manner the movement continued until Forty-second Street was the district where the white light was brightest and former sections South were comparatively dark. And this changing phase of New York continues. The unthinking are apt to believe that the Great White Way will ever remain where it is today. But if one meets and talks with that shrewd class of men who manipulate real estate on Manhattan Island, he'll learn that slowly but surely and in the not far distant future Fifty-seventh Street will become an important center,—if it is not already that,—and that we shall have to readjust our ideas as to New York's busiest traffic corners.

It was a shrewd and farseeing group of men that conceived the idea of a large masonic building, with a spacious auditorium, and selected for its site a location that is in the very heart of what will undoubtedly eventually be New York's most congested section. Mecca Temple is on the block bounded by Sixth and Seventh Avenues, Fifty-fifth and Fifty-sixth Streets. Owing to the fact that neither of the lateral streets is wide, it is not possible to gain a long vista of either façade. But the character of its architecture and the way it has been worked out proclaim the masonic occupancy of the building.

The original plan and the main features of design are the work of the late Harry P. Knowles. Mr. Knowles died January 1, 1923, before the building was more than fairly started. Messrs. Clinton & Russell were then appointed the architects, and they have practically confined their work to the carrying forward of the general scheme as outlined by Mr. Knowles.

MECCA TEMPLE, NEW YORK

H. P. KNOWLES, ARCHITECT—CLINTON & RUSSELL, SUPERVISING ARCHITECTS



DETAIL IN AUDITORIUM

MECCA TEMPLE, NEW YORK

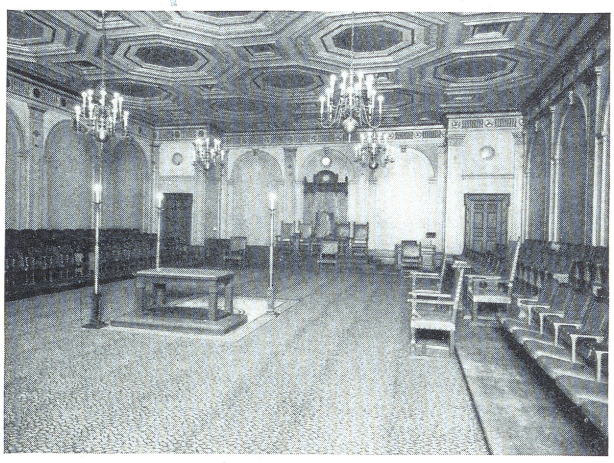
H. P. KNOWLES, ARCHITECT—CLINTON & RUSSELL, SUPERVISING ARCHITECTS

PROGRESS PHOTOGRAPH SHOWING THE COMPLETED DOME OF MECCA TEMPLE, NEW YORK

H. P. KNOWLES, ARCHITECT—CLINTON & RUSSELL, SUPERVISING ARCHITECTS

The building, extending from Fifty-fifth Street to Fifty-sixth Street, may be divided into two sections, both as to use and architectural treatment.

One of these sections, that facing Fifty-sixth Street, has a frontage of 100 feet and a depth of 50 feet, is twelve stories high and contains three well equipped lodge rooms with all necessary accessories. This section also contains the heating system for the entire building, club and lounge rooms, a dining room and well equipped kitchen. One floor is devoted entirely to the executive force of Mecca Temple. This section is Italian Renaissance in treatment. The principal materials of the exterior are sandstone, brick and terra cotta and the decorative features of the interior are moulded in plaster.



BLACKSTONE ROOM

The other section, on Fifty-fifth Street, may be subdivided into two parts, the stage and auditorium. This section has a frontage of 151 feet and a depth from street to back of stage, of 150 feet. The stage is 63 feet wide, 48 feet deep and 60 feet high to the gridiron. The opening under the proscenium arch is 46 feet wide and 30 feet high.

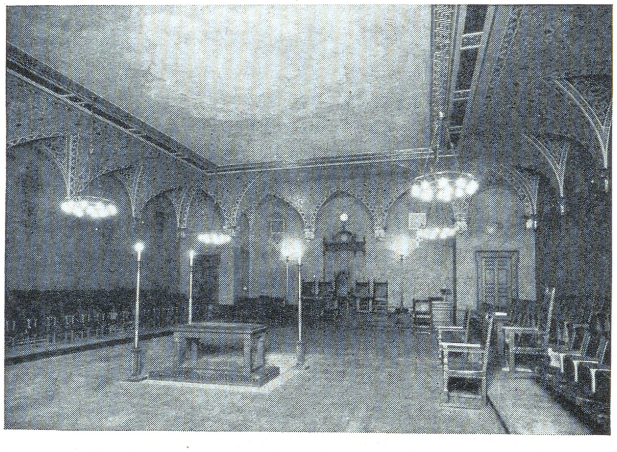
The auditorium, containing two galleries, is 136 feet wide, 96 feet deep and 82 feet high from the orchestra floor level to the plastered ceiling. The auditorium and stage are equipped as a modern theatre, where shrine ceremonials, operatic and theatrical performances may be adequately presented. In the basement of the auditorium is a banquet room 136 feet long and 96 feet wide provided with a well equipped kitchen to accommodate very large gatherings. The auditorium is surmounted by a dome 100 feet in diameter.

The architectural style of this section of the building is Arabic, both in form and color. The materials of the exterior are sandstone freely ornamented with polychrome terra cotta, while in the interior, the ornamental features are rendered in plaster and polychrome terra cotta.

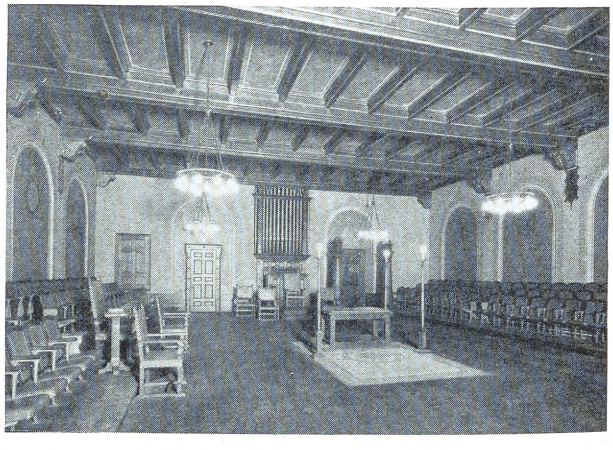
The building contains four pipe organs, one in each lodge room and one in the auditorium, one feature being the placing of the console of the latter organ in the balcony where the organist can best appreciate the blending of tone and properly gauge his effects.

At the present time there has been no attempt, except as above stated, at color decoration in the auditorium. This matter has been left for future development.

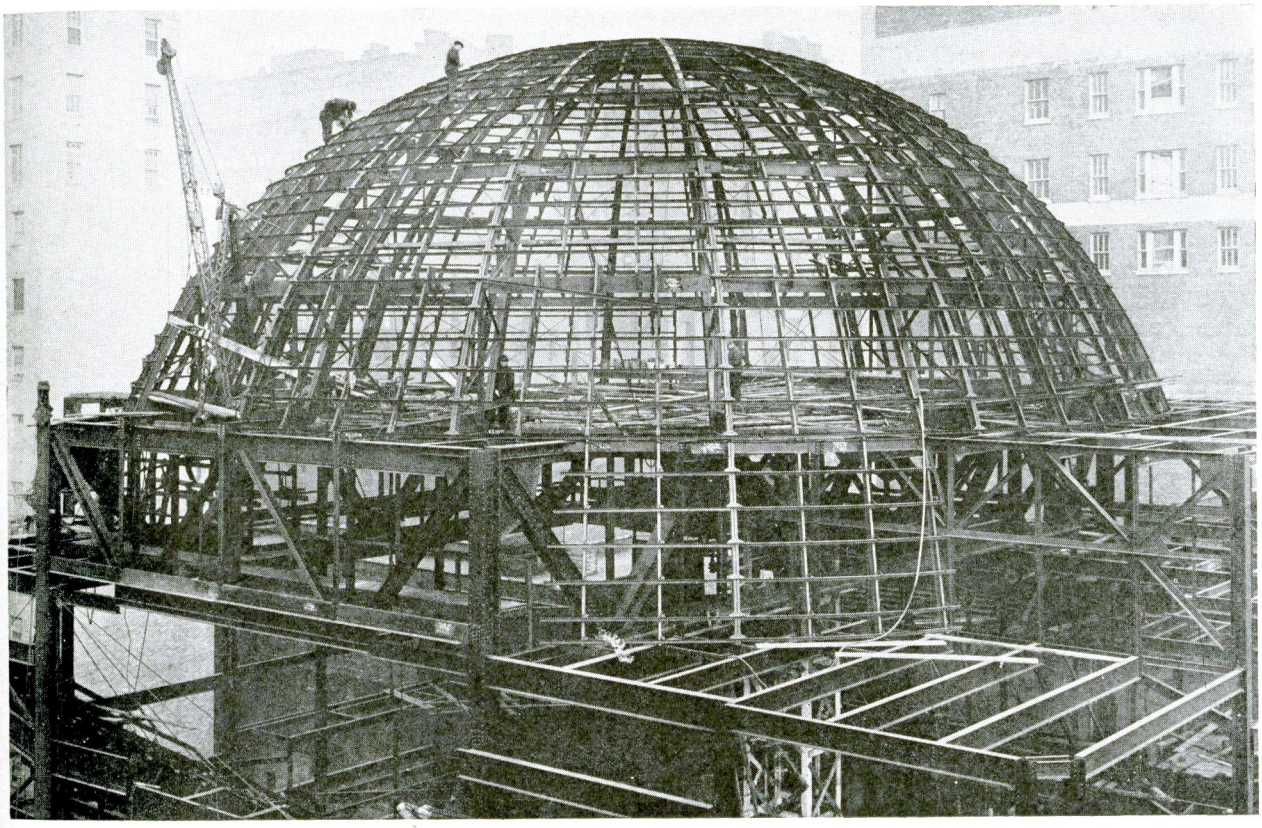
Among the interesting features of the building are its engineering problems. These together with the heating and ventilating are treated in a separate article in this issue.



KORAN ROOM



VEDA ROOM



STRUCTURAL STEEL FRAME OF THE DOME, WITH THE SUPPORTING TRUSSES

STRUCTURAL STEEL FRAMING *of the* MECCA TEMPLE, NEW YORK

*PURDY & HENDERSON CO., Engineers**

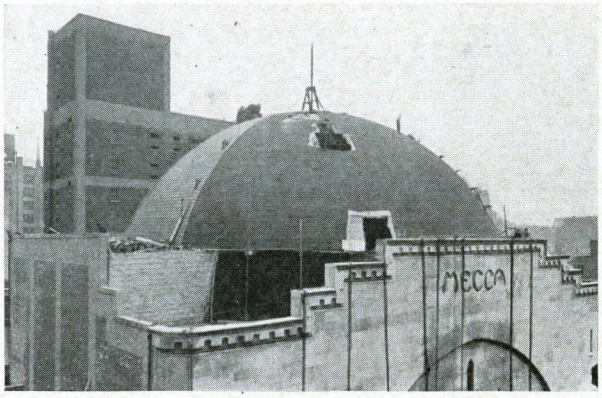
THE Mecca Temple building includes three distinct structural problems in that portion of the building facing Fifty-fifth Street, containing the auditorium, which are a large banquet hall in the basement, an auditorium on the first floor, having a seating capacity of about 5,000, and a domed roof over the auditorium. The adjustment of these three features, one to the other, required considerable study and ingenuity.

The banquet hall in the basement is unobstructed by columns and above it there are deep lattice trusses which support the auditorium floor. In addition to these deep lattice trusses there are a pair of deep heavy plate girders at each side, also spanning the banquet hall, on which are placed columns which support loads from the upper levels and roof. These girders are necessarily quite deep due to their long span and the heavy concentrated loads which they support. In the space between the banquet hall ceiling and the auditorium floor, occupied by these trusses and girders, are placed the ducts which distribute fresh air to the banquet hall and auditorium. There is also placed here an exhaust duct system which removes the foul air from the banquet hall,

* 45 *East 17th Street, New York City.*

and other utilities. The auditorium is free from columns, and in addition to the orchestra floor, there are a balcony and a gallery.

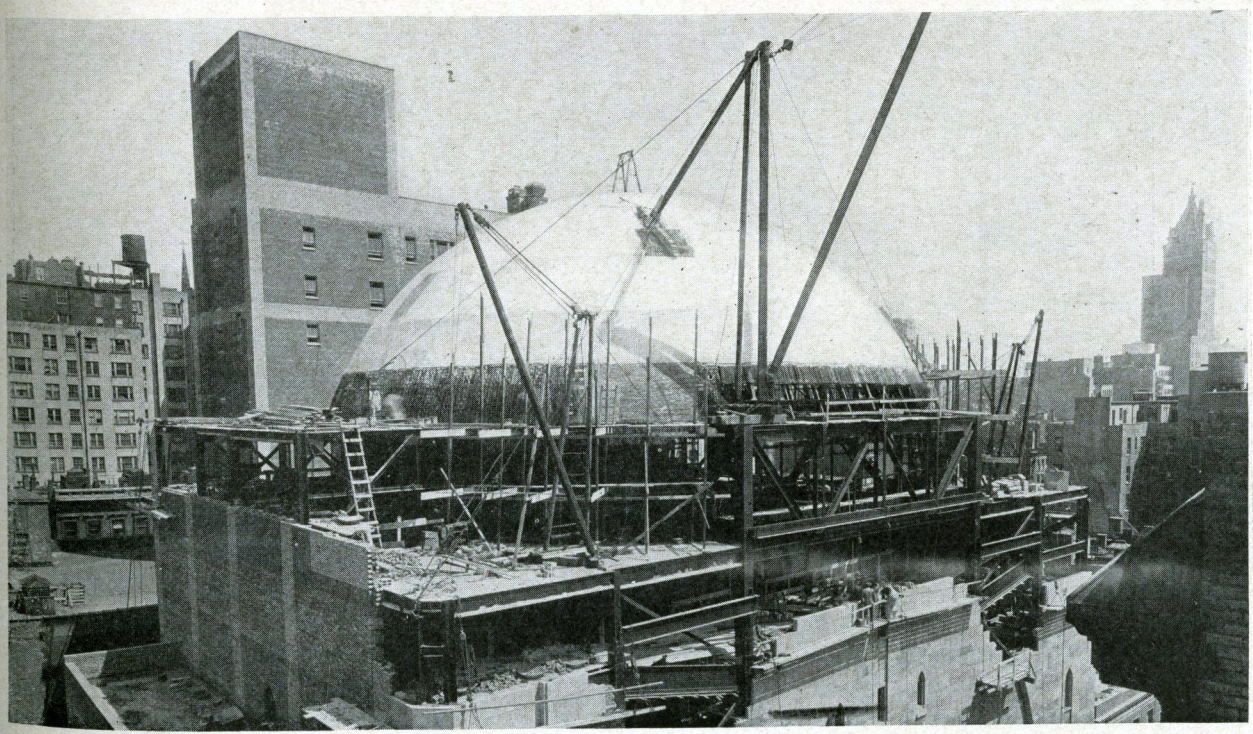
The main ceiling of the auditorium, through which is exhausted the foul air from this portion of the building, is very lofty. The fresh air is supplied to the auditorium through mushroom inlets placed under the seats of the different floors. The fresh air is distributed to these inlets by means of ducts placed under the main floor, as stated above, and by ducts placed between the ceiling and floors of the balcony and the gallery. The source of the warm fresh air is in a fan and heater room placed above the ceiling of the auditorium in front of the proscenium wall, from which place the air is forced down in large ducts to the distributing system, which has been above described. The fresh air inlet is on the roof.



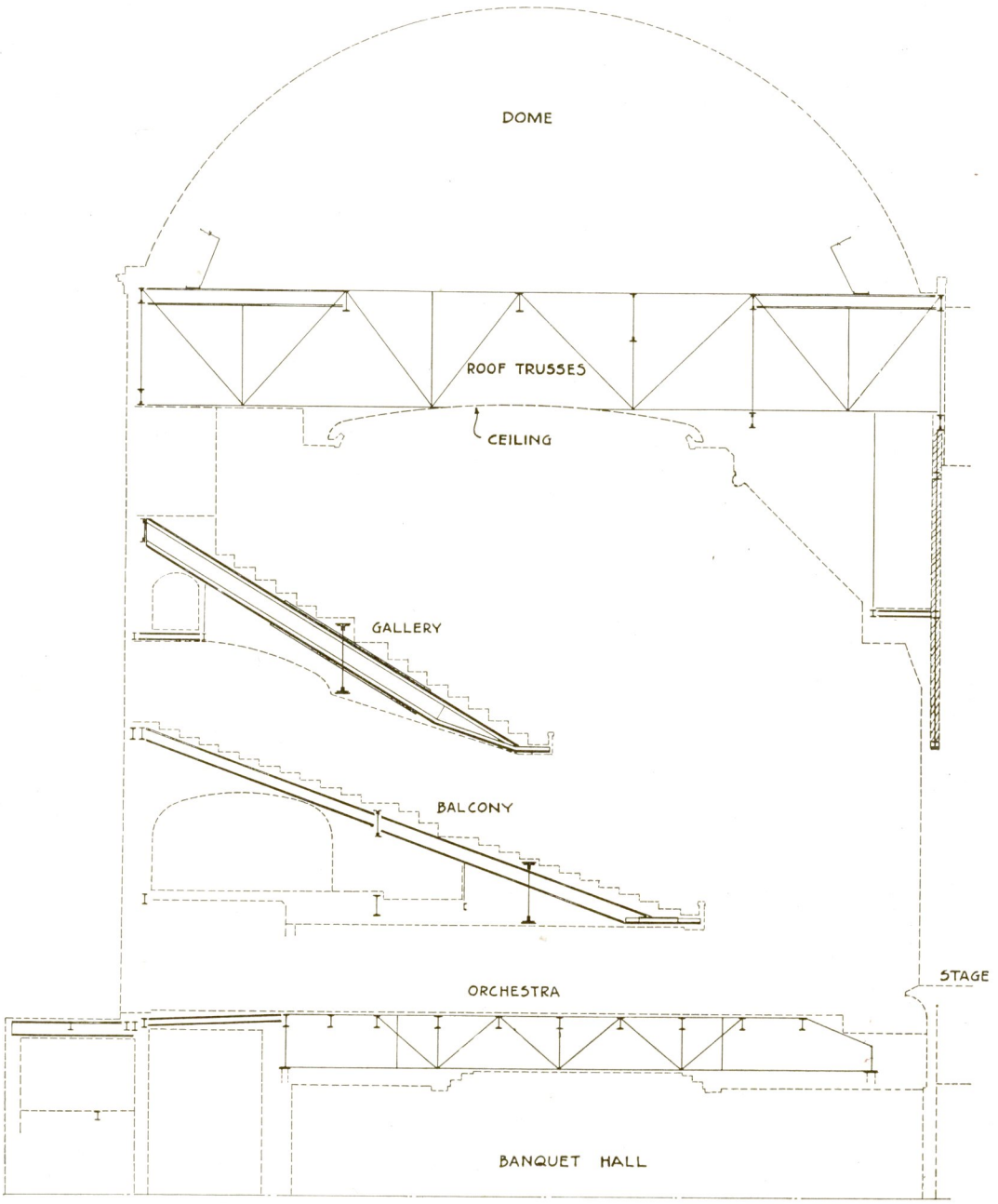
THE DOME COVERED WITH ROOFING FELT AND PARTIALLY COVERED WITH ROOFING TILE

The dome itself consists of a structural steel frame in which there are four principal arch ribs and between which are placed twelve arch ribs which have their upper end supported by a ring near the apex of the dome. The lower half of these ribs consists of two chords. The outer chord conforms to the contour of the dome and the inner chord conforms to the line of resistance under uniform loading. The upper half of the ribs is made up of 15″ I beams, bent to shape. The lower portion of the rib consists of two chords, each of which is made up of a web plate and two angles, and they are connected together with angle web members. The lower, or inner chord, is attached at its lower end to a continuous tension ring which consists of two angles and a plate. The inner chord of the dome has a span of 88′-0″ and a rise of 37′-6″. The radius of the exterior face of the dome is 54′-0″. The outer surface of the dome is constructed of 3″ of Nailcrete which was spread over a self-centering metal lath. This could not be poured in the usual way owing to the pitch of the surface and the impossibility of making forms without great cost. The Nailcrete was covered with a felt roofing paper on which were placed the terra cotta tiles securely nailed to the Nailcrete.

In order to conform to the architectural con-



THE DOME PARTIALLY ENCLOSED WITH NAILCRETE WHICH IS SPREAD ON SELF-CENTERING METAL LATH



LONGITUDINAL SECTION OF THE AUDITORIUM ON THE CENTRAL AXIS, SHOWING THE FRAMING OF THE ORCHESTRA FLOOR, THE BALCONY AND GALLERY, AND THE ROOF TRUSSES WHICH SUPPORT THE AUDITORIUM CEILING AND THE DOME

MECCA TEMPLE, NEW YORK

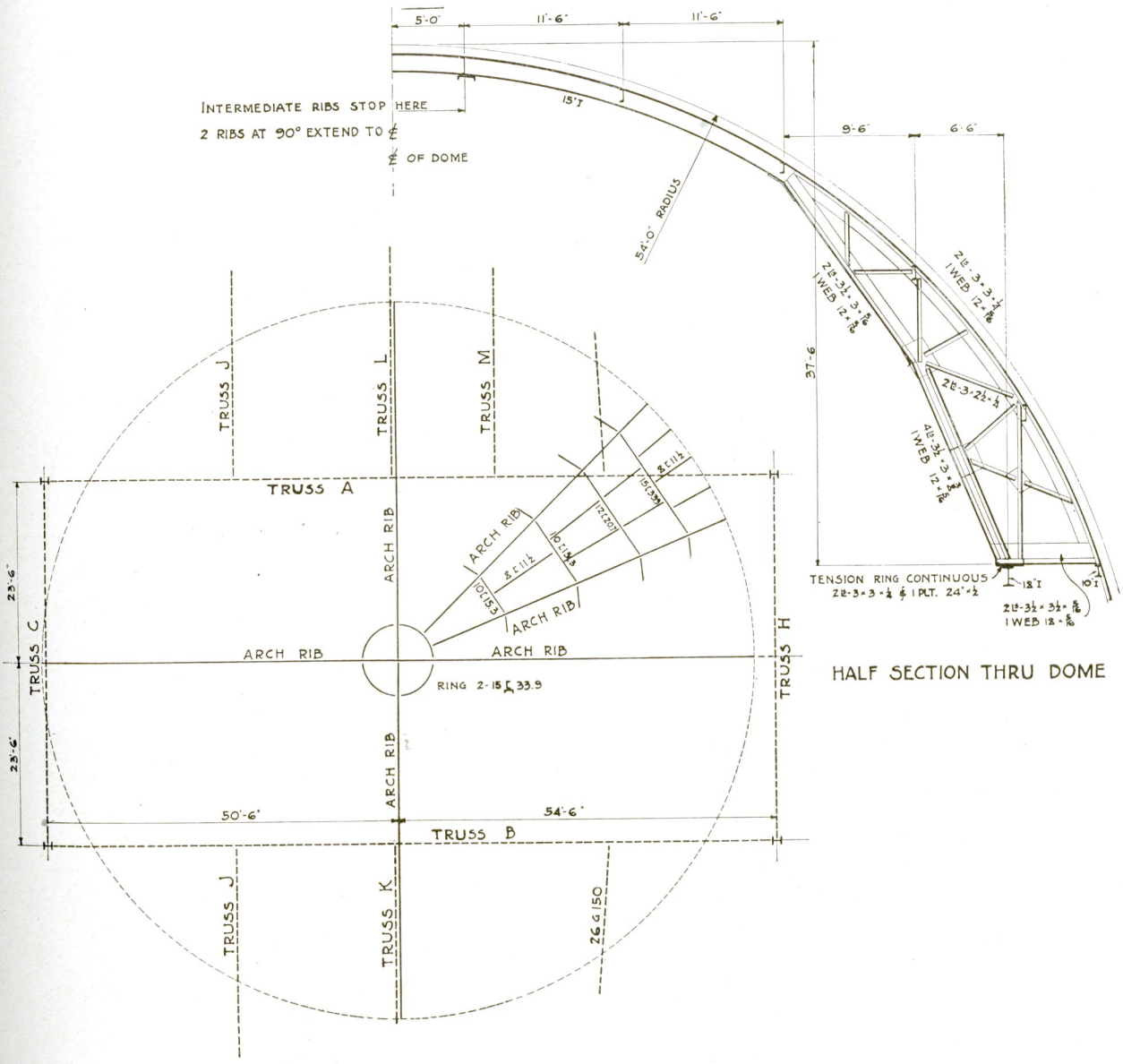
H. P. KNOWLES, ARCHITECT—CLINTON & RUSSELL, SUPERVISING ARCHITECTS

PURDY & HENDERSON CO., ENGINEERS

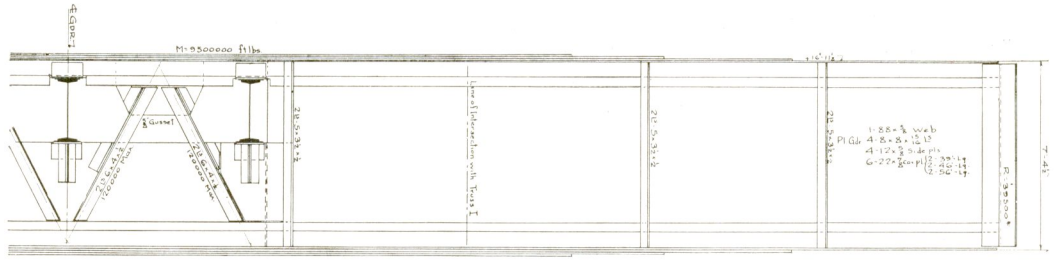
ditions, many interesting problems in framing were presented in the design of the balcony and gallery. These problems primarily were similar to those met with in all theatre construction. The unusual shape of the balcony made it necessary to employ double diagonal girders on each side of the balcony in order to reduce the length of the cantilevers on the side areas so that they could be made of rolled structural shapes. This use of double diagonal girders is quite unusual.

In the designing of the gallery it was found necessary to support the entire center area on one large truss having a span of 92'-6". This truss served as the fulcrum for the long plate girder cantilevers in the central portion of the gallery. In order to reach the forward areas on either side of this central portion, large plate girder cantilevers were carried out over the two columns which support the main gallery truss. From the ends of these plate girder cantilevers there were hung secondary fulcrums which support the radial cantilevers in these side areas.

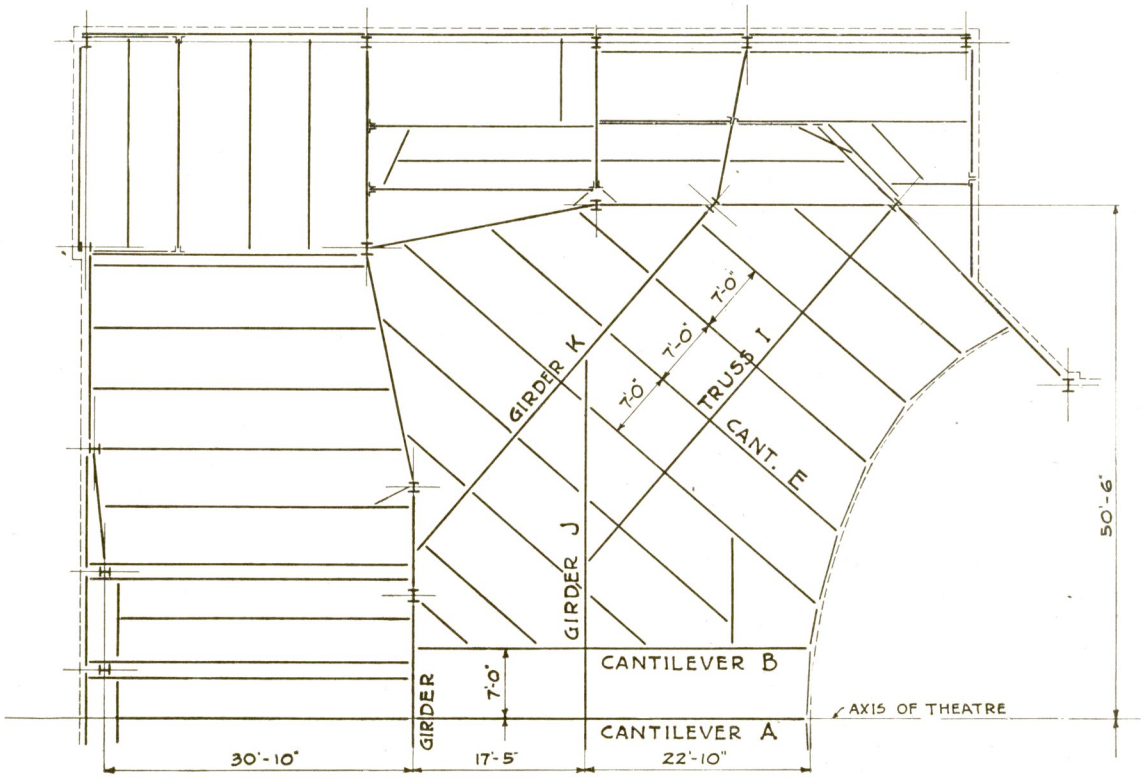
The stepping in the balcony and gallery was constructed with reinforced concrete treads de-



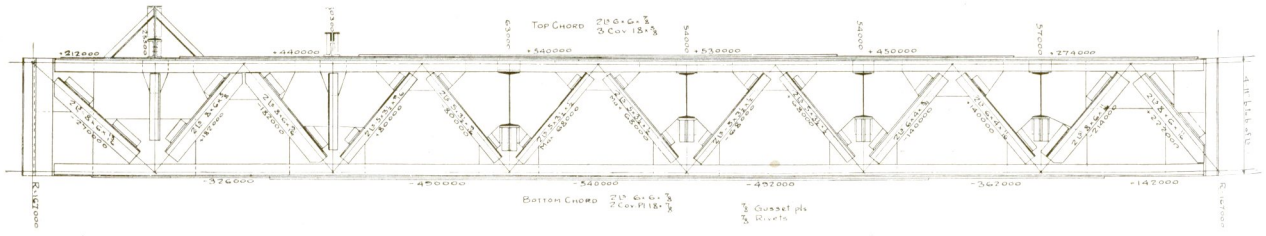
PLAN AND SECTION OF THE DOME, SHOWING THE SUPPORTS FOR THE DOME, THE ARRANGEMENT OF THE ARCH RIBS AND THE MINOR FRAMING TO SUPPORT THE ROOF



DETAIL OF THE DIAGONAL BALCONY GIRDER J SHOWING THE PENETRATION OF THREE CANTILEVERS ABOUT ITS CENTER



PLAN OF THE BALCONY FRAMING SHOWING THE DOUBLE DIAGONALS, GIRDER K AND TRUSS I IN THE SIDE AREAS AND GIRDER J IN THE CENTRAL SECTION

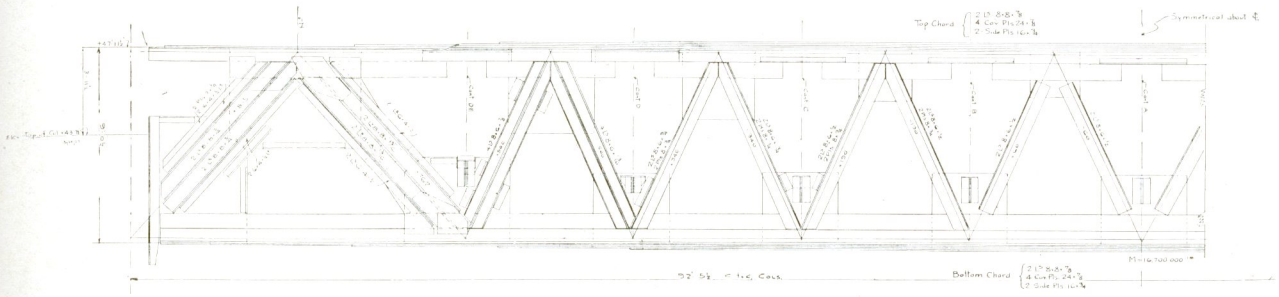


DETAIL OF THE DIAGONAL BALCONY TRUSS I, PERMITTING THE USE OF ROLLED SHAPE CANTILEVERS

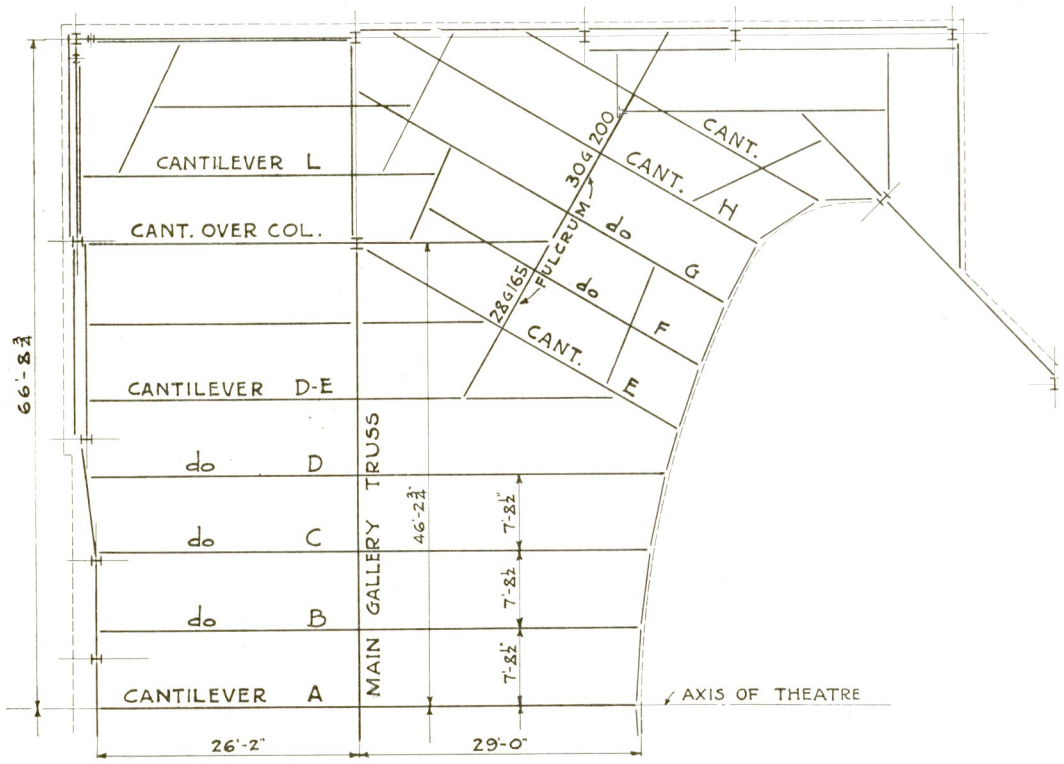
MECCA TEMPLE, NEW YORK

H. P. KNOWLES, ARCHITECT—CLINTON & RUSSELL, SUPERVISING ARCHITECTS

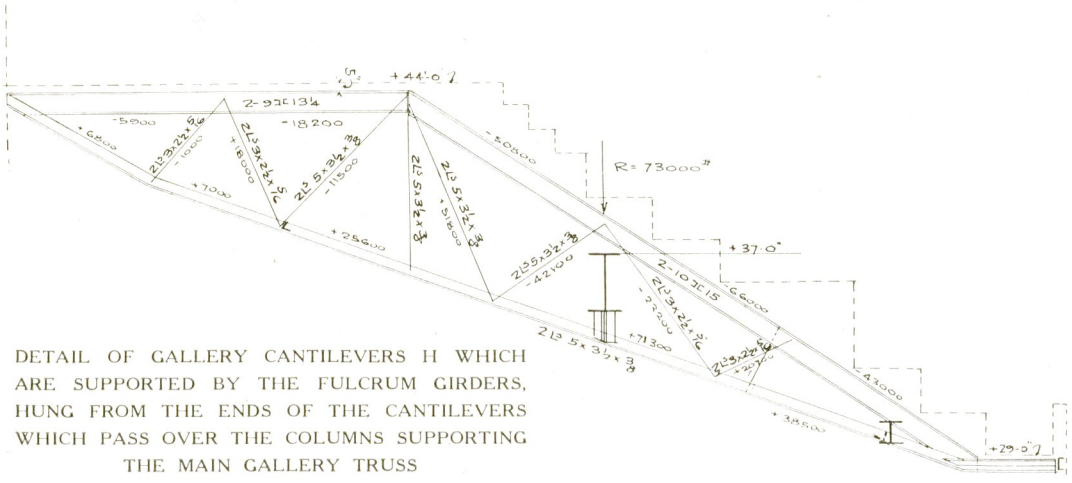
PURDY & HENDERSON CO., ENGINEERS



DETAIL OF THE MAIN GALLERY TRUSS



PLAN OF THE GALLERY FRAMING SHOWING THE SUPPLEMENTARY FULCRUM GIRDERS WHICH ARE HUNG FROM THE END OF THE CANTILEVERS OVER THE COLUMNS WHICH SUPPORT THE MAIN GALLERY TRUSS



DETAIL OF GALLERY CANTILEVERS H WHICH ARE SUPPORTED BY THE FULCRUM GIRDERS, HUNG FROM THE ENDS OF THE CANTILEVERS WHICH PASS OVER THE COLUMNS SUPPORTING THE MAIN GALLERY TRUSS

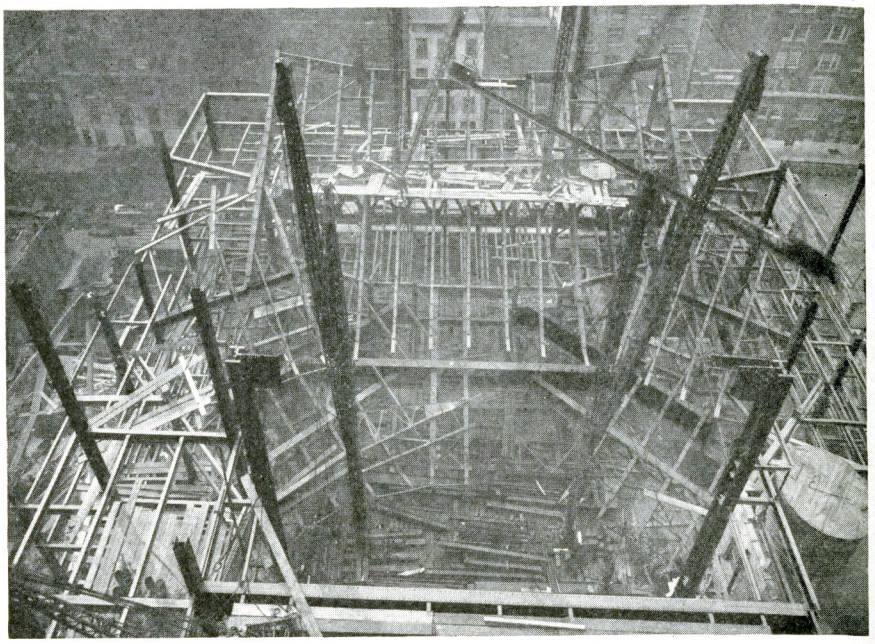
MECCA TEMPLE, NEW YORK

H. P. KNOWLES, ARCHITECT—CLINTON & RUSSELL, SUPERVISING ARCHITECTS

PURDY & HENDERSON CO., ENGINEERS

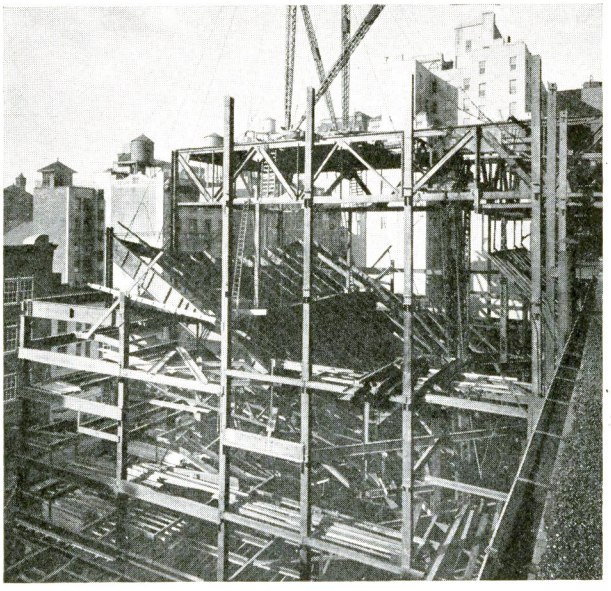
signed as slabs spanning between the supporting members. The risers were built up of hollow tile to avoid the expense of framework, and the result has been very satisfactory.

The building was constructed by James Stewart & Co., Inc., New York, contractors, and the structural steel was fabricated and erected by Levering and Garrigues Co., N. Y.

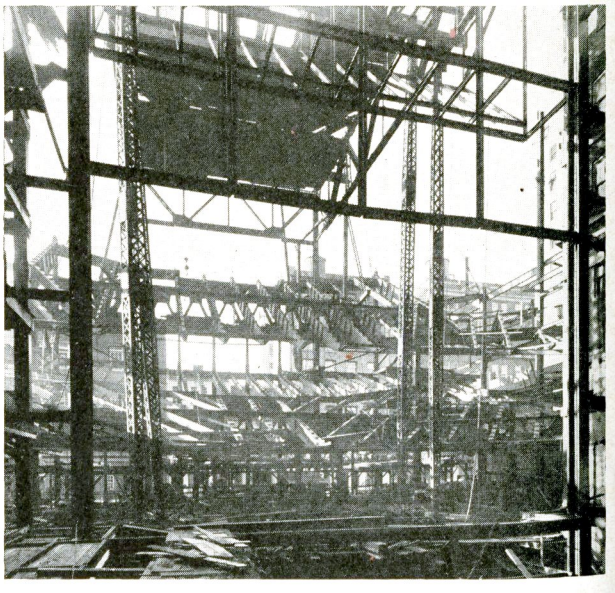


VIEW OF THE GALLERY AND BALCONY FRAMING ABOVE THE PROSCENIUM TRUSS

The facility with which structural steel satisfied the requirements of the architectural design of this building, evidences the superior qualities of that material. All materials have their limitations and the principal one of structural steel is its being affected by comparatively low temperatures, a condition which is met by the application of various forms of fire protective coverings. Every material is affected by temperature to some extent and in a different manner and all of them can be totally destroyed insofar as their structural integrity is concerned. Another limitation is an economic one—the cost of fabricating some structural forms of unusual shape that are sometimes more easily produced by the use of plastic concrete. But again, the great strength of steel, compared with other materials, volume to volume, makes it particularly available where a refinement of proportions is required. A great skeleton, such as is the steel frame of this building, is knitted together in the most rigid manner by comparatively simple jointing details, all of which are open to inspection and test as the fabrication and erection of the material proceed. The making of structural steel is a scientific process and the product can be made to conform to a predetermined quality. The machinery required to shape, fabricate and erect it is developed to a high degree of effectiveness. It is structural steel alone that makes certain types of modern buildings possible.



A VIEW OF THE STEEL FRAME FROM THE EAST, SHOWING THE INCLINED CANTILEVERS OF THE BALCONY AND GALLERY AND A PORTION OF THE TRUSS FRAMING WHICH SUPPORTS THE ROOF AND THE DOME



VIEW OF THE BALCONY AND GALLERY FRAMING FROM THE STAGE, SHOWING GIRDERS J AND K AND TRUSS I OF THE BALCONY, AND THE MAIN TRUSS OF THE GALLERY WITH THE CANTILEVERS

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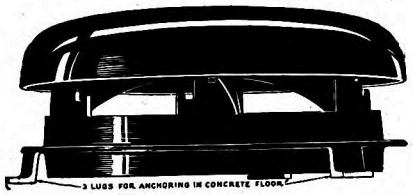

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in the auditorium of

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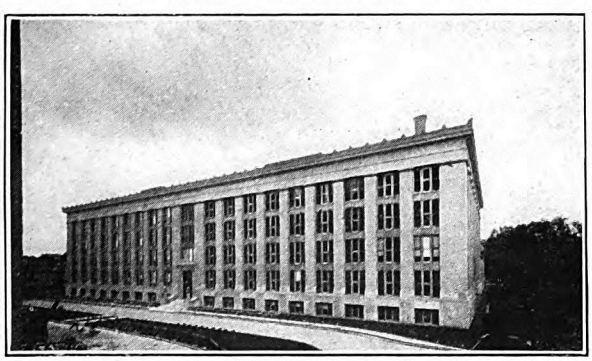

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